

Selected Examples of Significant Awards and Honors Received by NIH-supported Researchers

In a 1999 report, *Evaluating Federal Research Programs: Research and the Government Performance and Results Act*,[§] the Committee on Science, Engineering, and Public Policy of the National Academy of Sciences, the National Academy of Engineering, and the Institute of Medicine concluded that basic research programs can be evaluated meaningfully on a regular basis through expert review. The Committee recommended that agencies measure the quality of the research, its relevance to agency mission, and leadership in the field.

The scientific narratives provided by the NIH will allow the GPRA Assessment Working Group to address the quality and relevance of the NIH research program outcomes. The following examples of significant awards and honors bestowed on NIH extramural and intramural scientists address the third component—scientific leadership and whether the research is being performed at the forefront of scientific and technological knowledge. The awards described below were selected by the NIH Institutes as evidence of external recognition of the value of the outcomes of NIH-funded research and that NIH-funded scientists are national and world leaders in a wide variety of research areas.

NATIONAL AWARDS AND HONORS

§ The Nation's highest scientific honor, the **National Medal of Science**, recognizes individuals who have made outstanding contributions to knowledge in physics, biology, mathematics, engineering, or the social and behavioral sciences. It is bestowed annually by the President of the United States. Three NIH-supported researchers were awarded the 1998 Medal:

Bruce N. Ames (UC Berkeley) for changing the direction of basic and applied research on mutation, cancer, and aging. His simple, inexpensive test for environmental and natural mutagens identified causes and effects of oxidative DNA damage, and translated these findings into intelligible public policy recommendations on diet and cancer risk for the American people.

Janet D. Rowley (U Chicago) for revolutionizing cancer research, diagnosis, and treatment through her discovery of chromosomal translocations in cancer and for her pioneering work on the relationship of prior treatment to recurring chromosome abnormalities.

George M. Whitesides (Harvard U) for innovative and far-ranging research in chemistry, biology, biochemistry, and materials science that has brought breakthroughs to transition metal chemistry, heterogeneous reactions, organic surface chemistry, and enzyme-mediated synthesis.

\$ The **Albert Lasker Awards for Basic and Clinical Medical Research**, also known as America's Nobels,[®] and are among the most coveted of biomedical research awards; a number of recipients have gone on to win the Nobel Prize for their achievements. The Awards celebrate major advances in the understanding, diagnosis, prevention, treatment, and cure of disease. Several NIH-supported scientists received Lasker Awards in 1999 and 1998:

Clay M. Armstrong (U Penn), Bertil Hille (U Washington), and Roderick MacKinnon (Rockefeller U) for elucidating the functional and structural architecture of ion channel proteins, which govern the electrical potential of membranes throughout nature, thereby generating nerve impulses and controlling muscle contraction, cardiac rhythm, and hormone secretion.

Alfred G. Knudson (NIH/NCI), Peter C. Nowell (U Penn), and Janet D. Rowley (U Chicago) for incisive studies in patient-oriented research that paved the way for identifying genetic alterations that cause cancer in humans and that allow for cancer diagnosis in patients at the molecular level.

\$ Election to **membership in the National Academies** is considered one of the highest honors that a scientist, engineer, or medical professional can receive. Members are elected in recognition of their distinguished and continuing achievements in original research. The National Academies consist of four organizations: the National Academy of Sciences, the National Academy of Engineering, the Institute of Medicine, and the National Research Council. A number of NIH intramural and extramural scientists were elected to the National Academy of Sciences in 1999, including:

Marlene Belfort (NY State Department of Health), scientific fieldBbiochemistry
Joanne Chory (Salk Institute for Biological Studies), scientific fieldBplant biology
John Coffin (Tufts U), scientific fieldBmicrobiology and immunology
William DeGrado (U Pennsylvania), scientific fieldBbiochemistry
Robert Desimone (NIH/NIMH), scientific fieldBpsychology
Joseph Felsenstein (U Washington), scientific fieldBpopulation biology, evolution, ecology
Ralph Hirschmann (U Pennsylvania), scientific fieldBchemistry
Arthur Karlin (Columbia U), scientific fieldBphysiology and pharmacology
Arthur Landy (Brown U), scientific fieldBbiochemistry
J. Richard McIntosh (U Colorado), scientific fieldBcellular and developmental biology
Thomas Petes (U North Carolina at Chapel Hill), scientific fieldBgenetics
Jeffrey Roberts (Cornell U), scientific fieldBgenetics
Jerald Schnoor (U Iowa), scientific fieldBcivil engineering
Kenneth Wachter (UC Berkeley), scientific fieldBsocial and political sciences
Martin Weigert (Princeton U), scientific fieldBmicrobiology and immunology

\$ NIH grantees were the recipients of all three of the prestigious **General Motors Cancer Research Foundation Awards** in 1999. Winners receive \$250,000 and a gold medal.

The **Charles F. Kettering Prize**, recognizing outstanding contributions to the diagnosis or treatment of cancer, was awarded to Ronald Levy (Stanford U) for his clinical studies that enabled the development of Rituxan⁷, the first FDA-approved monoclonal antibody for the treatment of cancer.

Robert G. Roeder (Rockefeller U) was awarded the **Alfred P. Sloan Prize**, recognizing the most recent outstanding basic science contribution to cancer research, for his work with Robert Tijan (UC Berkeley) on mechanisms and regulation of gene transcription in eukaryotic cells.

The **Charles S. Mott Prize**, recognizing the most recent outstanding contribution related to the causes or ultimate prevention of human cancer, was awarded to President Arnold J. Levine (Rockefeller U) for discoveries related to the p53 tumor suppressor gene.

\$ The **Presidential Early Career Award** recognizes outstanding scientists and engineers at the outset of their independent research careers. In 1999, two NIH grantees were recipients:

Jeff Struewing (NIH/NCI) for his significant contributions to the understanding of breast cancer susceptibility genes.

Mark Von Zastrow (UCSF) for outstanding contributions to understanding the intracellular trafficking of neurotransmitter receptors and the effects of drugs of abuse on the cellular processes in the brain.

\$ Jennifer Raymond (Stanford U) received the **McKnight Scholar Award** which is granted to neuroscientists who have demonstrated meritorious research in areas that may improve understanding of the basic mechanisms of and disorders affecting memory.

\$ Two NIH grantees were recipients of a **MacArthur Fellowship** from the John D. and Catherine T. MacArthur Foundation. The Fellowship Program identifies, celebrates, and nurtures creativity, casting its net as broadly as possible in search of the most creative individuals:

Carolyn Bertozzi (UC Berkeley) has made important contributions to understanding how cells interact and developed a chemical remodeling technique that provides a valuable tool for investigating and developing treatments for disease processes such as infection, inflammation, and cancer proliferation.

Laura Kiessling (U Wisconsin) has developed innovative organic syntheses that expand our capacity to understand and control the biology of inflammation. She has designed compounds that can aggregate specific inflammation-mediating proteins, causing them to shed from the cell surface. This tool aids the study of immunologic processes and provides the groundwork for future development of drugs for treating conditions such as inflammation, cancer, and Alzheimer's disease.

- \$ Dennis W. Choi (Washington U) was awarded the **Christopher Reeve Research Medal** for his remarkable contributions to the field of spinal cord injury research. The award (a medal and a \$50,000 prize) recognized his research on the excitotoxic mechanisms of cell death that exacerbate injuries to the spinal cord and brain.

INTERNATIONAL AWARDS AND HONORS

- \$ The 1998 **Nobel Prize in Medicine or Physiology** was shared by Robert F. Furchgott (State University of New York) and Louis J. Ignarro (UCLA) along with Ferid Murad for their discoveries concerning the role of nitric oxide as a signaling molecule in the cardiovascular system.
- \$ Japan's **Keio Medical Science Prize** was awarded to Judah Folkman (Harvard U) for his pioneering work in angiogenesis. This award recognizes outstanding achievements in the field of medical science in the hope that it will ultimately contribute to the peace and prosperity of humankind.
- \$ The Government of Japan awarded (posthumously) its highest recognition given to a non-Japanese, the **Order of the Sacred Treasure, Gold and Silver Star**, to Edward W. Hook, Jr. in recognition of his extraordinary contributions to the U.S.-Japan Cooperative Medical Science Program. Dr. Hook was internationally recognized as an expert in salmonella and influenza infections as well as antimicrobial therapy of typhoid fever, pulmonary infections, and infective endocarditis.
- \$ The **Japan Prize** of the Science and Technology Foundation of Japan was awarded to Jack L. Strominger (Harvard U) and Don C. Wiley (Harvard U) for their work in isolating and characterizing the three-dimensional structures of key molecules (human histocompatibility proteins), complexes, and interactions involved in the human immune response. This prestigious international prize was presented by the Emperor and Empress of Japan and included an honorarium of 50 million yen (about \$440,000).
- \$ The **Pasteur Award** of the Children's Vaccine Initiative honors individuals who make exceptional contributions to vaccine development and immunization and, in so doing, expand

protection against infectious diseases. Albert Z. Kapikian (NIH/NIAID) and two other scientists were recognized for outstanding work contributing to development of rotavirus vaccines and their future utilization. The Children's Vaccine Initiative is an international coalition co-sponsored by the United Nations, the World Health Organization, the World Bank, and the Rockefeller Foundation.

\$ Leonardo G. Cohen (NIH/NINDS) has been selected for the **Humboldt Award** for his work on mechanisms and modulation of plasticity in the central nervous system in humans. This prestigious award granted by the Republic of Germany through the Humboldt Foundation aims to stimulate cooperation between German laboratories and prestigious scientists from the U.S.